

## 018 RGB LED Illuminator User Manual



### **Safety Information**

Keep out of wet environment; LED illuminator must be mounted in a dry and well ventilated location with easy accessibility. Avoid operating in ambient temperature of lower than -20°C and higher than 40°C. Use appropriate power adapter 12VDC.

### **LED Illuminator**

The 018 RGB LED illuminator has been thoroughly tested and shipped in perfect operating condition. Check the shipping carton carefully for damage that may have occurred during shipping. If the carton appears to be damaged, carefully inspect your fixture for damage and be sure all accessories necessary to operate the fixture have arrived intact. In case damage has been found or parts are missing, please contact us for further instructions.

### **WARNING:**

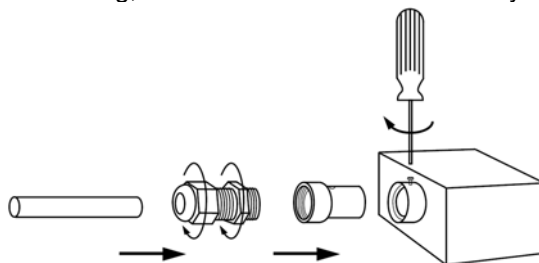
- Do not attempt to open the fixture and service the inside parts
- Installation must be performed by a qualified professional in accordance with related local codes
- Do not attempt to operate the fixture without first reading and understanding the safety concerns
- Always use surge protection for all applications to protect against premature failure
- Never install the fixture near a thermal source to avoid damage to the fixture

The LED illuminator can be mounted with nails or screw through 4x 3/16" mounting holes on the side of the unit. The fixture is suitable for dry locations only.

### **Solid Core Optical Fiber Installation**

To achieve the maximum performance and long service life BL optical fiber is capable of, please observe the following installation guidelines. LED Illuminators are capable of lighting optical fiber up to 50ft when both ends of the fiber are illuminated (looped back to the illuminator). Single-ended installations are typically limited to 20ft. The surrounding environment will have a dramatic affect on the apparent brightness of illuminated fiber. Expectations of performance must be accurately gauged to achieve a satisfactory result. Certain colours of the spectrum appear brighter to the human eye than others. For instance, yellow will appear much brighter than red. When installing fiber, care should be taken to not scratch or mar the surface. When the fiber leaves the illuminator, it should come out in a straight line for a few feet. Do not bend it immediately. The focus of the illuminator is critical. The illuminator should be focused on the ends of the fiber in a manner that presents uniform illumination to the fiber ends. The fiber must be installed into the illuminator on axis to the centerline of the light source. Fiber installed at an angle will not transmit as much light as fiber that is properly aligned.

Push in the optical fiber into the LED illuminator fitting. Turn fastening to tighten the fiber in place. Screw in the fitting to the LED illuminator main connection port as demonstrated in the figure below. The fiber end should be flush with the edge of the fitting; do not force the fiber all the way into the fixture.

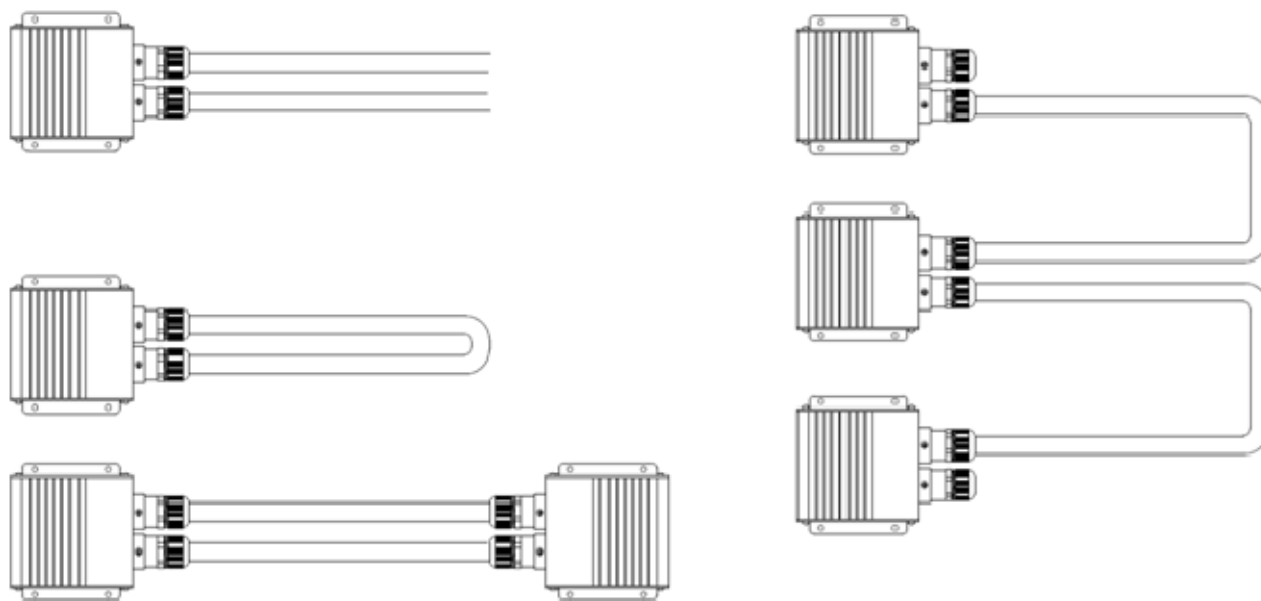




DO NOT bend the fiber at tight angles. The maximum recommended bend radius is 8x the fiber diameter. The fiber may be bent into tighter radii, but a “hotspot” will develop at the point of bending, and shorten the length through which the fiber will illuminate.

The table below gives fiber sizes, and the fiber capacity for each illuminator port.

Fiber Size	Fiber Capacity
1/8"	10
1/4"	3
3/8"	1
1/2"	1
3/4"	1
0.5 mm	300
0.75 mm	200
1.0 mm	100
1.5 mm	70
2.0 mm	30



Optical fiber connected in end light configuration can light up to approximately 20 feet. Side light connected via return-loop, end-to-end, or daisy chained can light up to 50ft. The light output values stated are estimated; the surrounding light in the environment will affect the actual light in application.

## Precautions and Considerations

DO NOT install the fiber without protecting it from ultraviolet light (UV). UV rays will degrade the fiber and seriously affect performance. Fiber ends exposed to UV must also be protected. Protection is required inside when the fiber will be subject to UV from skylights, windows or interior lighting that emits UV (for instance, bright fluorescent lighting). Always use a UV blocking cover (tubing or tracking type) when the fiber is exposed to UV. When installing optical fiber in UV protective tubing or tracking, allow space for expansion and contraction on the corners. Loss of performance and possible damage may result from stresses applied during the natural lengthening and shortening of the fiber as it is heated and cooled. It is recommended to bring the fiber up to room temperature when installing.

ALWAYS cut the end of the fiber using a very sharp blade. The ends of the fiber must be cut perpendicular to the long axis of the fiber for maximum performance. A clean, clear cut is critical, as a cut with occlusions will result in light loss.

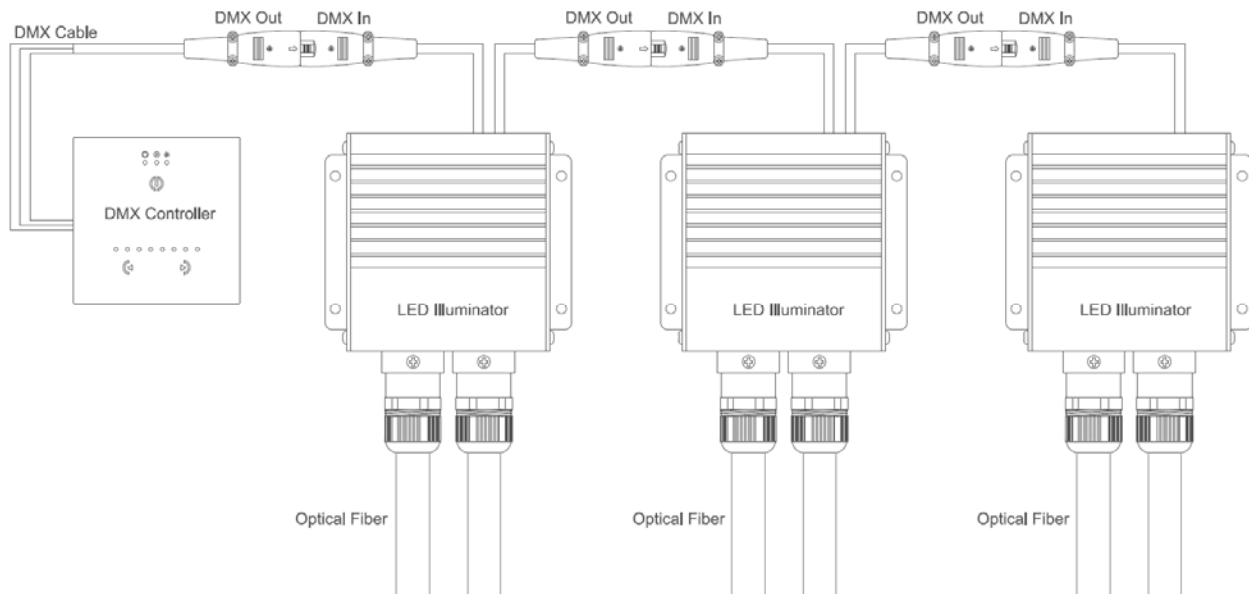
DO NOT submerge the ends of the fiber to water or any other liquid. The ends of the fiber should not come into contact with any liquid as the liquid can migrate between the cladding and the fiber, thereby causing damage over time.

## Controlling the LED Illuminator

DMX is a universal protocol used by most audio, lighting and controller manufactures as a form of communication between fixtures and controllers. A DMX controller sends out DMX data instructions to the fixtures via cables and the data travels through the DMX chain as a serial data. The BLFO-12V-RGB-015 LED illuminator uses 3-pin XLR cable as connection media. To ensure proper DMX data transmission, when using several DMX fixtures try to use the shortest cable path possible.

Connect the provided XLR 3-pin cable to the female 3-pin XLR output of your controller and the other side to the male 3-pin XLR input of the fixture (please refer to the figure below). You must chain multiple fixtures together through serial linking. Multiple illuminators can be linked together and controlled with a master controller or in master/slave mode. Refer to the figure below for the connection diagram.

## Master Controller to Slave LED Illuminators



To operate in Master/Slave mode, the master LED illuminator is switch to run a built-in program and the slave illuminators are changed to a DMX address. Different DMX addressing scheme will have the multiple fixtures illuminate in different fashion. The illuminators with the same address will operate simultaneously. The allocation of this starting DMX address is achieved by the 6 dip switches on the side of the fixture. The DMX addresses are shown in the table below. Dip switch is ON in the down position.



DMX Address	Dip Switches											
1	1	0	0	0	0	0	0	0	0	0	0	0
2	0	2	0	0	0	0	0	0	0	0	0	0
3	1	2	0	0	0	0	0	0	0	0	0	0
4	0	0	3	0	0	0	0	0	0	0	0	0
5	1	0	3	0	0	0	0	0	0	0	0	0
6	0	2	3	0	0	0	0	0	0	0	0	0
7	1	2	3	0	0	0	0	0	0	0	0	0
8	0	0	0	4	0	0	0	0	0	0	0	0
9	1	0	0	4	0	0	0	0	0	0	0	0
10	0	2	0	4	0	0	0	0	0	0	0	0
11	1	2	0	4	0	0	0	0	0	0	0	0
12	0	0	3	4	0	0	0	0	0	0	0	0
13	1	0	3	4	0	0	0	0	0	0	0	0
14	0	2	3	4	0	0	0	0	0	0	0	0
15	1	2	3	4	0	0	0	0	0	0	0	0
16	0	0	0	0	5	0	0	0	0	0	0	0
17	1	0	0	0	5	0	0	0	0	0	0	0
18	0	2	0	0	5	0	0	0	0	0	0	0
19	1	2	0	0	5	0	0	0	0	0	0	0
20	0	0	3	0	5	0	0	0	0	0	0	0
21	1	0	3	0	5	0	0	0	0	0	0	0
22	0	2	3	0	5	0	0	0	0	0	0	0
23	1	2	3	0	5	0	0	0	0	0	0	0
24	0	0	0	4	5	0	0	0	0	0	0	0
25	1	0	0	4	5	0	0	0	0	0	0	0
26	0	2	0	4	5	0	0	0	0	0	0	0
27	1	2	0	4	5	0	0	0	0	0	0	0
28	0	0	3	4	5	0	0	0	0	0	0	0
29	1	0	3	4	5	0	0	0	0	0	0	0
30	0	2	3	4	5	0	0	0	0	0	0	0
31	1	2	3	4	5	0	0	0	0	0	0	0

### LED Illuminator Built-in Programs

The LED illuminator has built-in programs and they can be controlled with dip switches on the side of the fixture. The combinations of dip switches access different programs; the configuration and the program description are given in the following table. Dip switch is ON in the down position.



Program	Description	Dip Switches											
-	Remote Control	0	0	0	0	0	0	0	0	0	10	11	0
1	Red (0 RPM)	1	0	0	0	0	0	0	0	0	0	11	0
2	Red (2 RPM)	0	2	0	0	0	0	0	0	0	0	11	0
3	Red (4 RPM)	1	2	0	0	0	0	0	0	0	0	11	0
4	Green (0 RPM)	0	0	3	0	0	0	0	0	0	0	11	0
5	Green (2 RPM)	1	0	3	0	0	0	0	0	0	0	11	0
6	Green (4 RPM)	0	2	3	0	0	0	0	0	0	0	11	0
7	Blue (0 RPM)	1	2	3	0	0	0	0	0	0	0	11	0
8	Blue (2 RPM)	0	0	0	4	0	0	0	0	0	0	11	0
9	Blue (4 RPM)	1	0	0	4	0	0	0	0	0	0	11	0
10	Magenta (0 RPM)	0	2	0	4	0	0	0	0	0	0	11	0
11	Magenta (2 RPM)	1	2	0	4	0	0	0	0	0	0	11	0
12	Magenta (4 RPM)	0	0	3	4	0	0	0	0	0	0	11	0
13	Yellow (0 RPM)	1	0	3	4	0	0	0	0	0	0	11	0
14	Yellow (2 RPM)	0	2	3	4	0	0	0	0	0	0	11	0
15	Yellow (4 RPM)	1	2	3	4	0	0	0	0	0	0	11	0
16	Cyan (0 RPM)	0	0	0	0	5	0	0	0	0	0	11	0
17	Cyan (2 RPM)	1	0	0	0	5	0	0	0	0	0	11	0
18	Cyan (4 RPM)	0	2	0	0	5	0	0	0	0	0	11	0
19	W, B, M, R, Y, G, C - Fade Change (5s 0 RPM)	1	2	0	0	5	0	0	0	0	0	11	0
20	W, B, M, R, Y, G, C - Fade Change (5s 2 RPM)	0	0	3	0	5	0	0	0	0	0	11	0
21	W, B, M, R, Y, G, C - Fade Change (5s 4 RPM)	1	0	3	0	5	0	0	0	0	0	11	0
22	W, B, M, R, Y, G, C - Fade Change (10s 0 RPM)	0	2	3	0	5	0	0	0	0	0	11	0
23	W, B, M, R, Y, G, C - Fade Change (10s 2 RPM)	1	2	3	0	5	0	0	0	0	0	11	0
24	W, B, M, R, Y, G, C - Fade Change (10s 4 RPM)	0	0	0	4	5	0	0	0	0	0	11	0
25	R, G, B - Fade (5s 0 RPM)	1	0	0	4	5	0	0	0	0	0	11	0
26	R, G, B - Fade (5s 2 RPM)	0	2	0	4	5	0	0	0	0	0	11	0
27	R, G, B - Fade (5s 4 RPM)	1	2	0	4	5	0	0	0	0	0	11	0
28	R, G, B - Fade (10s 0 RPM)	0	0	3	4	5	0	0	0	0	0	11	0
29	R, G, B - Fade (10s 2 RPM)	1	0	3	4	5	0	0	0	0	0	11	0
30	R, G, B - Fade (10s 4 RPM)	0	2	3	4	5	0	0	0	0	0	11	0

### LED Illuminator Remote Control

The illuminator must be in Remote Control Mode in order for the remote to work. Please follow the previous table to switch on the mode. The remote control buttons are Cancel, Enter, and number 1 – 6. To clear any current programs running, press Cancel. To access a built-in program, enter the program number with buttons 1 – 6. Press Enter to activate the program. With programs higher than 6, enter numbers equal to the sum of the program value. For example to access program 7, you can enter 1 and 6 or 3 and 4.

### Controlling LED Illuminator with DMX Channels

DMX Channel	Description
Channel 1	Red
Channel 2	Green
Channel 3	Blue
Channel 4	Twinkle Wheel RPM